# Automorphisms of the Fine Curve Graph

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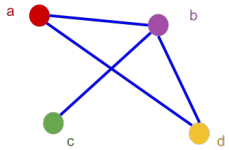
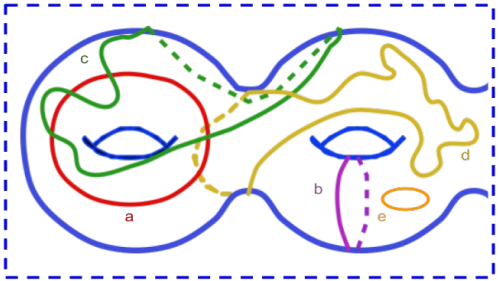
## Fine Curve Graph *FC(S)*

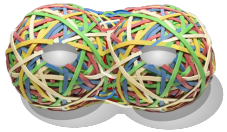
**Vertices:** essential simple closed curves in $S$
**Edges:** Disjointness



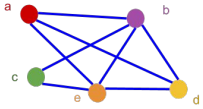

## Main Theorem

The natural map
**Homeo*(S)* → Aut *FC(S)***
is an isomorphism.



## Extended Fine Curve Graph *EFC(S)*

**Vertices:** simple closed curves (including inessential curves)

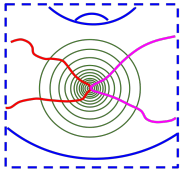



## Theorem (Farb-Margalit)

The natural map
**Homeo*(S)* → Aut *EFC(S)***
is an isomorphism.

## Subgraph of *EFC(S)* ↔ Point in *S*

$(c_i) \to c \Leftrightarrow$ $\forall\ a, b$ intersecting infinitely many $c_i$: $a$ intersects $b$



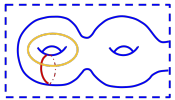
## Proof Approach: *EFC(S)* to *FC(S)*

We want a map:

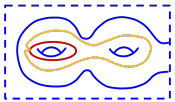
**Aut *FC(S)* → Aut *EFC(S)*** $\overset{\text{(F-M)}}{\cong}$ **Homeo*(S)***

## Characterizing Curves

The **hull** of a set of curves: union of the curves and all the disks they bound



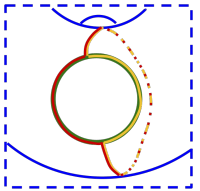
OR



⇔ The hull of two curves contains no other curve.

## Curve Pairs

Use essential curves characterizing inessential ones. More complex to characterize.



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